**WORKSHEET-1**

**SQL**

**Q1 and Q2 have one or more correct answer. Choose all the correct option to answer your question.**

**1. Which of the following is/are DDL commands in SQL?**

A) Create B) Update

C) Delete D) ALTER

**Ans.** **A) Create, D) ALTER**

**2. Which of the following is/are DML commands in SQL?**

A) Update B) Delete

C) Select D) Drop

**Ans.** **A) Update, B) Delete, C) Select**

**Q3 to Q10 have only one correct answer. Choose the correct option to answer your question.**

**3.Full form of SQL is:**

A) Strut querying language B) Structured Query Language

C) Simple Query Language D) None of them

**Ans.** **B) Structured Query Language**

**4.** **Full form of DDL is:**

A) Descriptive Designed Language B) Data Definition Language

C) Data Descriptive Language D) None of the above.

**Ans.** **B) Data Definition Language**

**5. DML is:**

A) Data Manipulation Language B) Data Management Language

C) Data Modeling Language D) None of these

**Ans.** **A) Data Manipulation Language**

**6. Which of the following statements can be used to create a table with column B int type and C float type?**

A) Table A (B int, C float) B) Create A (b int, C float)

C) Create Table A (B int,C float) D) All of them

**Ans. C) Create Table A (B int,C float)**

**7. Which of the following statements can be used to add a column D (float type) to the table A created above?**

A) Table A ( D float) B) Alter Table A ADD COLUMN D float

C) Table A( B int, C float, D float) D) None of them

**Ans.** **B) Alter Table A ADD COLUMN D float**

**8. Which of the following statements can be used to drop the column added in the above question?**

A) Table A Drop D B) Alter Table A Drop Column D

C) Delete D from A D) None of them

**Ans.** **B) Alter Table A Drop Column D**

**9. Which of the following statements can be used to change the data type (from float to int ) of the column D of table A created in above questions?**

A) Table A (D float int) B) Alter Table A Alter Column D int

C) Alter Table A D float int D) Alter table A Column D float to int

**Ans.** **B) Alter Table A Alter Column D int**

**10. Suppose we want to make Column B of Table A as primary key of the table. By which of the following statements we can do it?**

A) Alter Table A Add Constraint Primary Key B B) Alter table (B primary key)

C) Alter Table A Add Primary key B D) None of them

**Ans.** **C) Alter Table A Add Primary key B**

**Q11 to Q15 are subjective answer type questions, Answer them briefly.**

**11. What is data-warehouse?**

**Ans.**

A data warehouse is a central repository of information that can be analyzed to make more informed decisions. Data flows into a data warehouse from transactional systems, relational databases, and other sources, typically on a regular cadence. Business analysts, data engineers, data scientists, and decision makers access the data through business intelligence (BI) tools, SQL clients, and other analytics applications.

Data and analytics have become indispensable to businesses to stay competitive. Business users rely on reports, dashboards, and analytics tools to extract insights from their data, monitor business performance, and support decision making. Data warehouses power these reports, dashboards, and analytics tools by storing data efficiently to minimize the input and output (I/O) of data and deliver query results quickly to hundreds and thousands of users concurrently.

**12. What is the difference between OLTP VS OLAP?**

**Ans.**

**What is OLAP?**

Online Analytical Processing, a category of software tools which provide analysis of data for business decisions. OLAP systems allow users to analyze database information from multiple database systems at one time.

The primary objective is data analysis and not data processing.

**What is OLTP?**

Online transaction processing shortly known as OLTP supports transaction-oriented applications in a 3-tier architecture. OLTP administers day to day transaction of an organization.

The primary objective is data processing and not data analysis

**Example of OLAP**

Any Datawarehouse system is an OLAP system. Uses of OLAP are as follows:

A company might compare their mobile phone sales in September with sales in October, then compare those results with another location which may be stored in a sperate database.

Amazon analyzes purchases by its customers to come up with a personalized homepage with products which likely interest to their customer.

Example of OLTP system

An example of OLTP system is ATM center. Assume that a couple has a joint account with a bank. One day both simultaneously reach different ATM centers at precisely the same time and want to withdraw total amount present in their bank account.

However, the person that completes authentication process first will be able to get money. In this case, OLTP system makes sure that withdrawn amount will be never more than the amount present in the bank. The key to note here is that OLTP systems are optimized for transactional superiority instead data analysis.

**Other examples of OLTP system are:**

* Online banking
* Online airline ticket booking
* Sending a text message
* Order entry
* Add a book to shopping cart

**KEY DIFFERENCE BETWEEN OLTP VS OLAP:**

Online Analytical Processing (OLAP) is a category of software tools that analyze data stored in a database whereas Online transaction processing (OLTP) supports transaction-oriented applications in a 3-tier architecture.

OLAP creates a single platform for all type of business analysis needs which includes planning, budgeting, forecasting, and analysis while OLTP is useful to administer day to day transactions of an organization.

OLAP is characterized by a large volume of data while OLTP is characterized by large numbers of short online transactions.

In OLAP, data warehouse is created uniquely so that it can integrate different data sources for building a consolidated database whereas OLTP uses traditional DBMS.

Benefits of using OLAP services

OLAP creates a single platform for all type of business analytical needs which includes planning, budgeting, forecasting, and analysis.

The main benefit of OLAP is the consistency of information and calculations.

Easily apply security restrictions on users and objects to comply with regulations and protect sensitive data.

**Benefits of OLTP method**

It administers daily transactions of an organization.

OLTP widens the customer base of an organization by simplifying individual processes.

**Drawbacks of OLAP service**

Implementation and maintenance are dependent on IT professional because the traditional OLAP tools require a complicated modeling procedure.

OLAP tools need cooperation between people of various departments to be effective which might always be not possible.

**Drawbacks of OLTP method**

If OLTP system faces hardware failures, then online transactions get severely affected.

OLTP systems allow multiple users to access and change the same data at the same time which many times created unprecedented situation.

**13. What are the various characteristics of data-warehouse?**

**Ans.**

Data Warehouse is designed with four characteristics. They are

1. **Time variant :-**

A Data Warehouse is a time variant data base, which supports the business management in analysing the business and comparing the business with different time periods like Year, Quarter, Month, Week and Date.

1. **Non Volatile:-**

It is non volatile Database, once the data entered into the database, it does not reflects to the change which takes place at operational database. Hence the data is statics in Data Warehouse.

1. **Integrated:-**

A DWH is a integrated database, which allows you to collect the data and integrate the data with multiple database sources.

1. **Subject Oriented:-**

Data warehouse is a subject oriented database, which supports the business need of individual department specific user.

**Example** : Sales, HR, Accounts, Marketing etc.

**14. What is Star-Schema?**

**Ans.**

**Star schema** is the fundamental schema among the data mart schema and it is simplest. This schema is widely used to develop or build a data warehouse and dimensional data marts. It includes one or more fact tables indexing any number of dimensional tables. The star schema is a necessary case of the snowflake schema. It is also efficient for handling basic queries.

It is said to be star as its physical model resembles to the star shape having a fact table at its center and the dimension tables at its peripheral representing the star’s points.

In the above demonstration, SALES is a fact table having attributes i.e. (Product ID, Order ID, Customer ID, Employer ID, Total, Quantity, Discount) which references to the dimension tables. **Employee dimension table** contains the attributes: Emp ID, Emp Name, Title, Department and Region. *Product dimension table* contains the attributes: Product ID, Product Name, Product Category, Unit Price. *Customer dimension table* contains the attributes: Customer ID, Customer Name, Address, City, Zip. *Time dimension table* contains the attributes: Order ID, Order Date, Year, Quarter, Month.

**15. What do you mean by SETL?**

**Ans.**

SETL stands for Semantic-Extract-Transform-Load.

For better business analytics organization uses data from various sources. The data so obtained may be unstructured, semi structured or structured. So, there is a process called ETL or Extract\_Transform\_Load. Its work is to extract data from various source process them and load the clean and aggregated from into the warehouse. This process is the backbone of data warehouse.

But this method is losing its efficiency as it does take semantics into account. This hamper the analysis. To overcome this SETL has been introduced.